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alberta Prairie conservation action plan 2001 - 2005

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The dawning of a new millennium is an occasion to look backwards as well as forwards. A thousand years ago the prairie was home to a long-standing hunter-gatherer civilization. A hundred years ago it was being settled by a society with a strong agricultural tradition. Today most inhabitants of the prairie live in urban centres and rely on a high-tech economy with an ecological footprint that extends far beyond the city limits. Many of us have recently arrived from other places.

Regardless of our diverse and changing culture, the prairie is our shared home place and a fundamental part of our collective story. A major challenge, probably more so now than ever before, is developing a shared understanding of the prairie ecosystem, including recognizing the opportunities it provides and the limits it places upon us, and learning to care for our prairie home. If we seriously address this challenge now, there is a much better chance that one hundred years from now our descendents will have a healthy prairie home which sustains them — ecologically, culturally and economically — and that their shared story of the past will reflect kindly upon us.

Cheryl Bradley
1000 Chairperson,
Prairie Conservation Forum

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MINISTER'S FOREWORD

Alberta Prairie Conservation Action Plan 2001-2005

Not everyone is aware that our prairies are richly diverse, dynamic landscapes. They contain a wide variety of habitats and distinctive vegetation
communities. Many different types of wildlife depend upon Alberta's grasslands, including species at risk and endangered species.

We have learned that the loss of habitat effects not only wildlife, but also the quality and richness of the environmental heritage we all share. In the past, Alberta has lost vital prairie habitat through a variety of factors including settlement, industrial development, and urbanization. Without proper management, our valuable remaining prairie habitat would deteriorate or be lost. Conserving the legacy we have inherited is a noble goal and the collective responsibility of everyone living or working in prairie Alberta.

I am pleased to introduce the Alberta Prairie Conservation Action Plan (PCAP) for 2001-2005. This key document provides the vision, goals, objectives and action recommendations for conserving Alberta's native prairie and parkland ecosystems over the next few years. It is actually a third generation PCAP, following the original prairie-wide document and Alberta's 1996-2000 plan. The Government of Alberta supports the implementation of provisions this new document contains.

Albertans from every walk of life are invited to assist the Prairie Conservation Forum (PCF) in implementing the PCAP. PCF member organizations comprise more than thirty government, private sector and non-government organizations, including various agricultural and conservation groups and academics. Members cooperate as partners to ensure that the wonderful biodiversity of Alberta's prairie and parkland is honoured and preserved.

True co-stewards of Alberta's landscapes, PCF members are helping preserve a natural legacy for all Albertans to enjoy, now and in the future. On behalf of the Alberta government, thank you for your commitment and dedication. May you enjoy great success in your continuing efforts.

M. Cardinal

Mike Cardinal
Minister of
Sustainable Resourse
Development

PREFACE

It is an honor to present this third generation Prairie Conservation Action Plan (PCAP) to Albertans. Through the cooperative efforts of member organizations that make up the Prairie Conservation Forum (PCF), Alberta's PCAP has been revised and updated to provide a practical five-year strategy to address new prairie conservation challenges.

Prairie conservation action plans have provided direction for maintaining and enhancing our grassland and parkland ecosystems. Numerous successful conservation initiatives have been undertaken in response to the action recommendations contained in the first prairie-wide PCAP (1989-1994) and in Alberta's successor PCAP (1996-2000). Alberta's PCF has been instrumental in advancing the prairie conservation agenda contained in the PCAPs. Through the pooling of ideas, energy and resources, member organizations have been able to achieve collectively what no one organization could accomplish alone. A noteworthy development has been the growing awareness that PCF initiatives are most successful when land stewards are brought on side and a collaborative approach is taken to resolve conservation issues.

Through this third generation PCAP, the PCF has expressed a vision, principles and strategies for sustaining Alberta's native prairie landscapes, natural processes, species and communities. To make the vision a reality, and to implement the various action recommendations contained in this PCAP, will require the continuing support of land owners, lessees, resource management agencies, industry, agricultural and conservation organizations, and academia. In particular, the cooperation, dedication and willing spirit of landowners and lessees is of paramount importance to retaining a diversity of prairie plants, animals and natural processes. We acknowledge and appreciate the continuing commitment of land stewards who have embraced a conservation land ethic.

The PCF is committed to implementing the Alberta Prairie Conservation Action Plan: 2001-2005. We invite others to join with us in fulfilling the action recommendations that are stated in this plan. We trust that all Albertans will embrace the vision and principles that have been outlined in the new PCAP. Our cooperative efforts will make a difference in sustaining our prairie heritage.

Dug Major
2000 Chairperson
Prairie Conservation Forum

Prairie Conservation in Alberta

Alberta's Native Prairie[1] Landscape

In North America, only Texas and North Dakota retain a larger native prairie land base than Alberta. Extensive tracts of public and private rangelands in east central Alberta and the Palliser Triangle are home to a largely intact native mixed grass prairie ecosystem on which the ranching community depends. Ranching provides a unique livelihood and lifestyle, makes a significant contribution to the provincial economy, and is compatible with preserving native prairie over time. Prairie landscapes have significant heritage value and provide ecological, cultural, and economic benefits for all Albertans. Maintaining native prairie rangelands under long-term stewardship is critical to the success of prairie conservation efforts in Alberta. It will demand an enlightened understanding of ecological and economic relationships and an ability to resist short-term pressures to fragment and intensify land use.

Developing a Prairie Conservation Strategy

The first Prairie Conservation Action Plan (PCAP) was released by World Wildlife Fund Canada and the governments of Manitoba, Saskatchewan and Alberta late in 1988. It was a five-year blueprint, concluding in 1994, aimed at prairie-wide efforts to conserve and manage native prairie species, communities, and habitats.

Following the conclusion of the first prairie-wide PCAP, provincial PCAPs were developed in Alberta, Saskatchewan and Manitoba. The first of these, the Alberta PCAP: 1996 - 2000, was drafted by the Prairie Conservation Forum (PCF). The PCF, which was established by the Government of Alberta in response to the original PCAP, is currently comprised of some three-dozen member organizations representing all three levels of government, non-government organizations, industry, academia, and agricultural and environmental interest groups. The Forum exists to promote the Alberta PCAP and to provide an ongoing profile for prairie and parkland conservation initiatives.

The first Alberta PCAP was the product of a process involving an assessment of accomplishments during the period 1989-94, a multi-party workshop, and a public review. The Alberta PCAP broadened the base of support for prairie conservation. It acknowledged community empowerment, the emergence of ecosystem management, information technology, the importance of micro-fauna, and changes in the role of government.

Both the first Alberta PCAP and this current version remain true to the enduring characteristics of the PCAP produced by the World Wildlife Fund. The focus remains on the conservation of native species, communities and habitats; a commitment to a prairie-wide vision; and the adoption of multi-party partnerships, i.e., networking with other conservation initiatives and employing cooperative approaches wherever possible.

It is the opinion of the Prairie Conservation Forum that the basic framework adopted in the first Alberta PCAP (i.e., vision, principles, goals and most objectives) continues to remain relevant in the new millennium. As a result, fundamental revisions have not been made to the 1996-2000 plan. Revisions have largely amounted to 'fine-tuning' changes: deleting

[1] Throughout this document the word 'prairie' refers to both prairie (dry mixed-grass, mixed-grass, northern fescue, and foothills fescue) and parkland (central parkland, foothills parkland) natural regions within Alberta.

action statements that have been implemented; making minor modifications to some goals and objectives; and including several new action recommendations which represent logical 'next steps'. The 'Strategic Issues' section of this plan contains new material. A thorough assessment and major re-write of Alberta PCAP is anticipated when this plan expires in December 2005.

It should be noted that the Alberta PCAP is consistent with the Government of Alberta's natural resources and environmental policies as found in Alberta's Commitment to Sustainable Resource and Environmental Management (1999).

"Even now, soils are drifting, valley bottoms are being broken, wetlands are still being drained, aspen bluffs levelled, patches of native prairie ploughed."

Stan Rowe, 1990

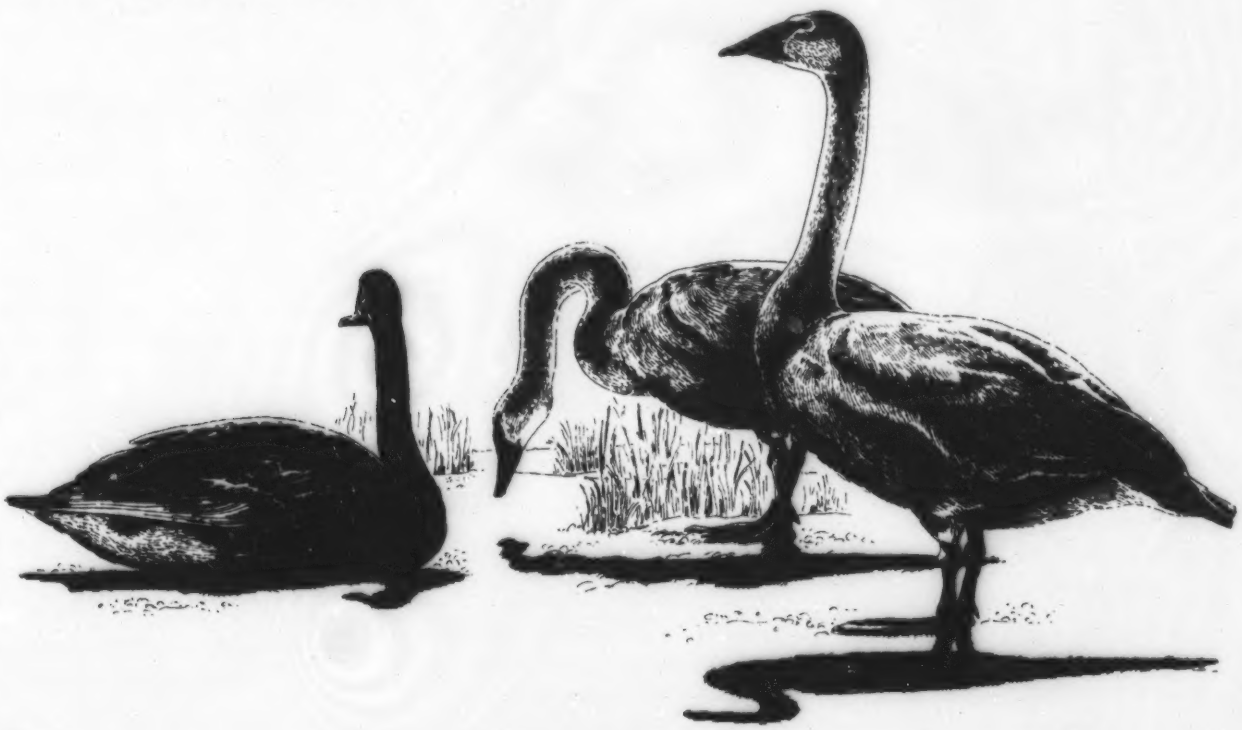
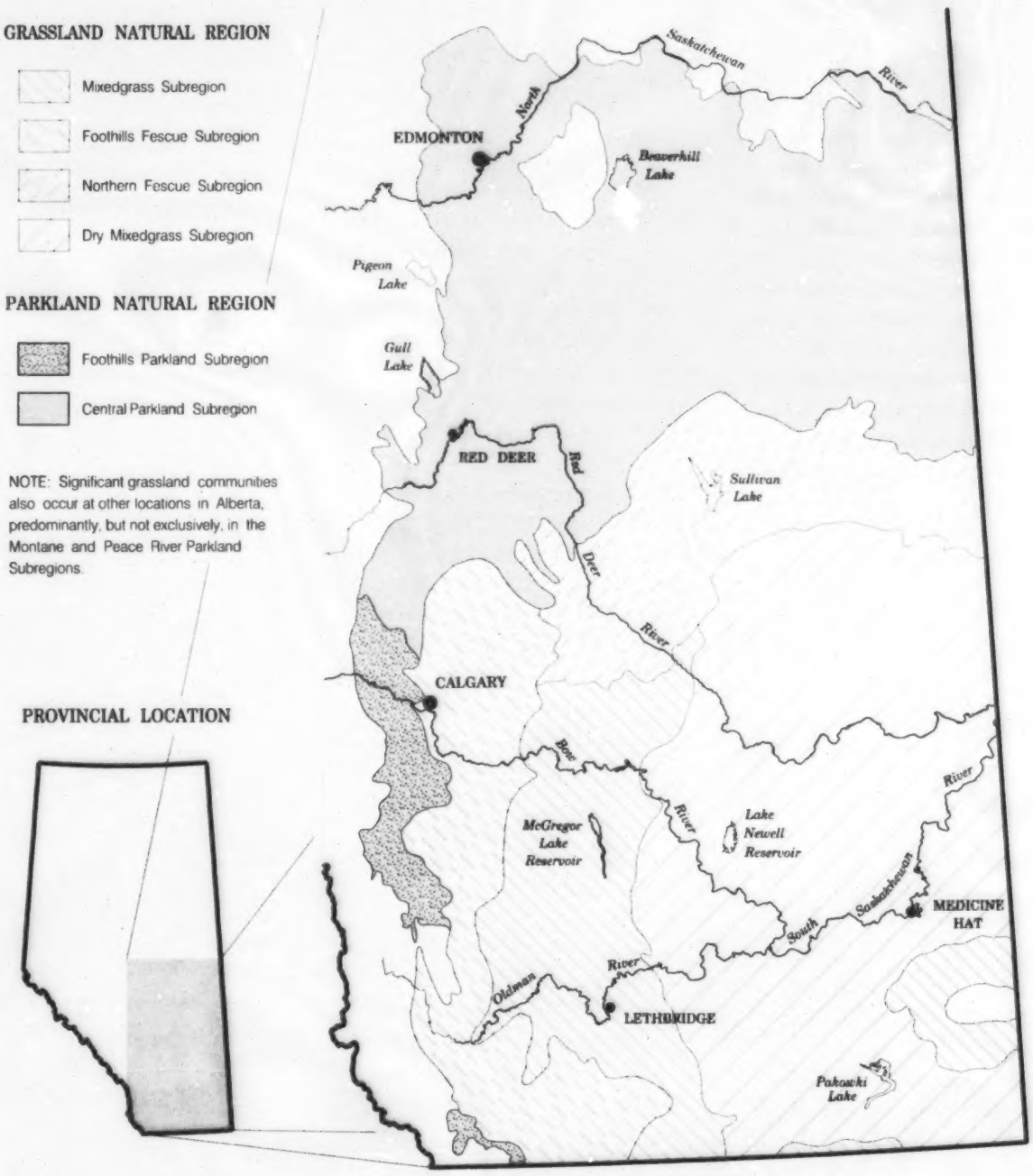


FIGURE 1

NATURAL REGIONS IN PRAIRIE AND PARKLAND ALBERTA



Vision, Principles and Goals

Prairie Provinces PCAP Vision

Canadians need to ensure that native prairie, with its wild plants and animals, survives in the west and is conserved for its intrinsic values, from which this and future generations can benefit.

Alberta's PCAP Vision

The biological diversity of native prairie and parkland ecosystems in Alberta is conserved for the benefit of current and future generations.

Guiding Principles

A conservation ethic will be applied to all activities and management decisions on the prairies.

All stakeholders will be involved in the process of achieving the prairie conservation vision. Stakeholders will work cooperatively and form partnerships to achieve prairie conservation objectives.

Stakeholders will be empowered at a local community level to work towards prairie conservation initiatives, drawing on local knowledge and expertise.

Alberta's Goals

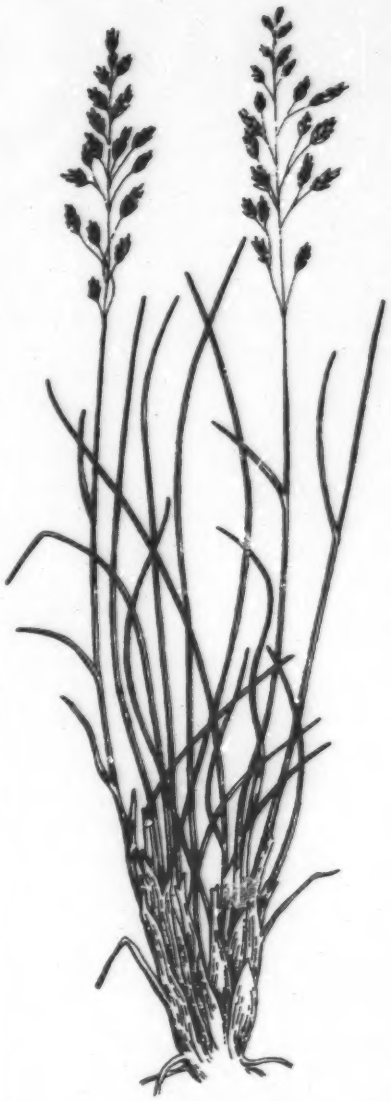
Goal 1 Advance the identification, understanding and use of information about Alberta's prairie and parkland ecosystems.

Goal 2 Encourage government policies, programs and regulations that favour the conservation of Alberta's native prairie and parkland landscapes while preserving their cultural and economic values.

Goal 3 Adopt land use management practices and protective strategies that sustain diverse ecosystems across the whole prairie and parkland landscape.

Goal 4 Increase awareness of the values and importance of Alberta's native prairie and parkland ecosystems.

The Alberta PCAP is a strategic plan that provides direction for conserving native prairie and parkland landscapes throughout Alberta. All Albertan's who use and enjoy these natural landscapes are encouraged to put the plan's provisions into effect. It is anticipated that individuals, organizations or user groups (in addition to PCF member organizations) who support the direction contained in this plan will undertake various implementation activities to achieve the plan's goals and objectives. In the coming months the Prairie Conservation Forum will identify specific actions that the Forum will take to implement this plan. Wherever possible, collaborative approaches and partnerships should be adopted to conserve our native prairie and parkland landscapes.



Strategic Issues and Goals

Alberta's native grasslands and parkland sustain biodiversity, preserve soil and organic matter, and provide social and economic benefits to all users of the prairie landscape.

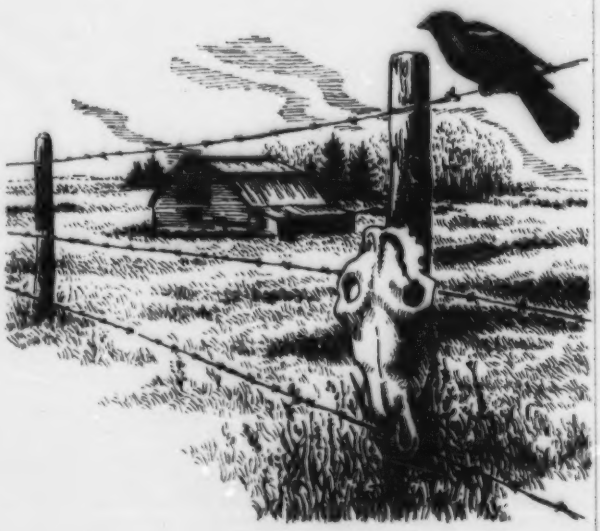
Biodiversity: Approximately three-quarters of the wildlife species considered at risk in Alberta rely on native prairie habitats. About a quarter of Alberta's rare vascular plant species are native to the prairies.

Soil organic matter: Expensive 'cover' programs have been used in Canada and the U.S. to protect soils under cultivation. Native grasslands protect and build soils. They also store large amounts of carbon - up to 200 tonnes per hectare (more than a temperate rainforest). Converting native prairie to cropland releases 20 to 30 percent of the stored carbon.

Ranching: Grazing is the oldest and most sustainable form of agriculture. Human inputs and energy requirements are low compared to other forms of agriculture. Well-managed rangelands are relatively resilient to both commodity and climatic fluctuations. Rangelands and ranching are also tied inexorably to the history of this country, to the Canadian identity, and to a way of life that is uniquely 'western'.

"Eco-centric education, switching the emphasis away from ourselves, is the key."

Stan Rowe, 1000



These and many other values (see http://www.AlbertaPCF.ab.ca/value_of_prairie.html) can only continue as long as native prairie is being sustained. Massive, wholesale land conversions are mostly a thing of the past but small, incremental changes continue. In any given year such changes are inconsequential, but like interest on investments, the changes add up over time. Our land base remains finite and a one-percent change annually will totally transform the land base in 100 years.

During the life of this Prairie Conservation Action Plan, Alberta will celebrate its 100th anniversary. We have also recently celebrated the dawn of a new millennium. Such moments provide valuable opportunities to reflect on our place in the larger scheme of things. What have we gained and what have we lost in the last 100 years? What do we value now, and what do we want future generations to experience of this Alberta prairie landscape that we enjoy today? Do we want them to experience vast open native rangelands? Pronghorn antelope? Green Needle Grass? Ferruginous Hawks? Sprague's Pipits? Rattlesnakes?

If we do, we must realize that the future flows logically from our actions today. Native prairie can withstand human use and livestock grazing, but it cannot survive if it becomes so fragmented that the life cycles of prairie species can no longer be sustained.

"... touch nature and show others, especially children, to touch nature. Because they know that touching is understanding and once you understand you will act."

Peter Lee, 1005

Is this alarmist? Right now its tough to know, but we do know that significant (often permanent) incremental change is occurring on the native prairie landscape. Following is a list of some key threats to landscape integrity.

Urban expansion / subdivisions:

Is driven by continuing population growth (which brings a demand for linear infrastructure such as roads, pipelines and power lines) and affluence. Cities are expanding and country residential properties are appearing in urban commuting zones.

The Southern Foothills region south of Calgary is the area of greatest concern. Other areas, such as the region between Medicine Hat and the Cypress Hills, select areas around Edmonton, and at lakeside communities are also seeing increased urbanization.

Agricultural conversion:

In the first part of the twentieth century the majority of the native prairie landscape was transformed to farmland. Even today, native prairie continues to be broken. Susceptibility is greatest in wet cycles, when grain and cereal prices are high, where there are isolated or fringe parcels, or in response to new specialty crop markets, e.g., potatoes on sandy soils. Conversion may also occur due to irrigation expansion or in response to taxation regimes.

Resource sector conversions:

Industrial sites, sites for new plants and factories, open pit mines, sand and gravel pits, and dams all result in permanent deletions from the native prairie land base.

The most extensive current impacts upon native prairie result from ongoing exploration and development activity by the petroleum and natural gas industry. Seismic activity, access roads, well sites, processing facilities, and pipelines all have direct impacts upon, and contribute to, habitat fragmentation and the introduction of non-native species.

Minimal disturbance practices have made a big difference in the last decade. At low intensities of use and with high standards being observed, exploration, development and production activities can occur in a manner that minimizes the industrial 'footprint' and allows for successful reclamation and eventual restoration of functioning prairie landscapes. However, high commodity prices have resulted in an increased level of activity in more areas, and intensively developed fields become, for all intents and purposes, 'sacrifice' areas.

Introduced species:

Leafy Spurge and Knapweed are a real concern along river corridors, as is Downy Brome upon upland sites. Crested Wheat grass 'creeps' downwind from old reclaimed well sites, pipelines and road allowances, displacing native plant communities. Soft grasses, especially Brome and Timothy, continue their inexorable expansion over large areas of the Southern Foothills region.

In response to these challenges, three key strategic priorities will be pursued by the Prairie Conservation Forum over the next five years. Working Groups will be struck to:

1. Document and quantify changes taking place over time.
In 1999, a reconnaissance level inventory of native prairie vegetation in the Grassland Natural Region was completed using data from the early 1990's. Selective change analyses in identified 'hot spots' will be conducted annually. During the life of the new Alberta PCAP the entire inventory will be repeated with early 2000's data. Attempts will be made to differentiate between permanent and temporary conversions.

2. Achieve a better understanding of the implications of change over time.
The Alberta Landscape Cumulative Effects Simulation (ALCES) model is being applied to the Grassland Natural Region. ALCES will be used as a forecasting, strategic planning, policy assessment, management, and educational tool. The intent will be to understand and respond to socially driven activities that are transforming our landscape. Attempts will be made to apply any explicitly geo-spatial successors to ALCES and also to extend this initiative to the Parkland Natural Region.

3. Promote a better understanding of the implications of impacts on landscape integrity amongst decision-makers and the public.
Through Goal 4, efforts will be made to promote awareness and influence action by focusing educational and extension activities on landholders, resource managers, industry leaders, politicians, municipal officials, and the general public. The Forum will provide factual information to decision-makers involved in land use transformations in all sectors.

Goal 1

Advance the identification, understanding and use of information about Alberta's prairie and parkland ecosystems.

Since the first PCAP was published, a great deal of inventory data has been acquired and compiled about the state of Alberta's prairie and parkland ecosystems. A major reconnaissance level inventory of native vegetation in the Grassland Natural Region has identified percentages of the land base remaining in a native state for six cover classes at the quarter-section level.

A conservation data-centre, the Alberta Natural Heritage Information Centre (ANHIC), was established as a repository of information on rare and endangered species. Environmentally Significant Areas (ESA) inventories were completed for all rural municipalities in prairie and parkland Alberta. A digital ESA map of all 'provincial' and higher ranked ESAs within Alberta is available from ANHIC. Biophysical reports that analyze the Parkland Natural Region and Grassland Natural Region from a Crown land/landscape protection/biodiversity conservation perspective have been produced. A Prairie Ecology Research Committee (PERC) was established to develop a web based bibliographic database of hard-to-find prairie inventories and studies, and to identify Alberta research priorities.

There is a great deal more that can be known about Alberta's prairie ecosystems and, no doubt, part of the work over the next five years will be to fill in some information gaps. For example, little is known about the finer-scale (1:30,000) pattern of native prairie remnants, how these areas may be expanding or contracting and why. Not enough is known about the implications of patch sizes for the preservation of prairie biodiversity. Indeed basic biodiversity data is lacking for many areas. At the other end of the spectrum, we need to know how Alberta's prairies and their inhabitants might be influenced by trends that are affecting the fate of prairie ecosystems in Saskatchewan and the United States.

Just as important as gaining an understanding is acting on what is known. Current data provide a broad-scale picture of the state of remaining prairie ecosystems. Our challenge now is to convey that understanding to the widest public audience and to encourage all who care about the future of the prairies to translate that understanding into helpful policies and practical, site-specific management actions.

The Prairie Conservation Forum does not have a mandate to conduct research or complete inventories of the prairie landscape and prairie species. The Forum can, however, play an instrumental role in promoting, coordinating, and integrating research activities, inventories, and studies on prairie ecosystems. To this end, the PCF has established the Prairie Ecology Research Committee (see objective 1.3).

1.1 Objective:

Complete the identification of native vegetation in the aspen parkland and conduct studies of prairie landscape change.

Actions:

1.1.1 Complete an inventory and classification of remaining native vegetation in the aspen parkland of Central Alberta (Central Parkland sub-region). The inventory will be designed with the characteristics of the parkland landscape in mind (many small and fragmented parcels exist), but also in a way that allows comparisons with the Grassland Natural Region reconnaissance inventory.

1.1.2 Conduct fine-scale (1:30,000) air photo landscape change studies for selected prairie sites. Classify new land uses and identify the reasons for land use change.

1.1.3 Conduct a ten-year change analysis of the entire reconnaissance level inventory of the Grassland Natural Region.

1.2 Objective:

Improve the accessibility and use of available information.

Actions:

1.2.1 Augment the existing bibliographic list of prairie inventories and studies. Post the bibliography on the PCF website.

1.2.2 Evaluate the use made of existing inventories, especially where decision-makers are making limited use of relevant available information, and identify recommendations to improve the 'fit' between information gathering and decision-making mechanisms.

1.2.3 Pursue the creation of an electronic database of scientific literature on prairie wildlife habitat requirements, with the aim of establishing a habitat requirements database for a list of target species.

1.2.4 Expand the PCF Website to include ESAs, Native Prairie Vegetation Inventories, wildlife habitat requirements database, and an interactive bibliography, as these become available.

1.3 Objective:

Promote research relevant to prairie conservation and encourage the integration of research and inventory efforts.

Actions:

1.3.1 The Prairie Ecology Research Committee will promote research through the following actions:

- identify and prioritize research needs in specific fields
- promote research activity beyond the species level, to include communities and ecosystems, and to focus beyond vertebrate animals and vascular plants to include invertebrate animals, non-vascular plants and fungi
- encourage the initiation and completion of priority research related to biodiversity conservation
- identify areas of overlap or duplication in research and inventory efforts and opportunities for increasing research efficiencies
- share information about research initiatives

1.3.2 Establish a research program on prairie ecology at an Alberta university.

1.3.3 Encourage baseline biotic inventories especially of micro-flora and micro-fauna in various habitats.

1.3.4 Enhance inventories and research activities focused on native fish species and aquatic ecosystems, including ephemeral prairie streams and wetlands.

1.3.5 Encourage research into landscape management approaches that sustain biodiversity.

1.3.6 Pursue multi-disciplinary research that investigates better ways to minimally disturb native prairie, and to restore the ecological structure and function of disturbed sites.

1.4 Objective:

Ensure that research and inventory results are applied to ecosystem management in the prairies.

Actions:

1.4.1 Interpret the significance of prairie research results by commissioning review papers and recommending appropriate applications.

1.4.2 Make the information obtained in research projects available to decision-makers working on prairie ecosystem management.

1.4.3 Identify by 1997 a range of prairie environmental indicators and coordinate the collection and integration of information required to apply them.

"Ecosystem management... involves a shift in management focus from sustaining yields of competing resource outputs to sustaining ecosystems."

Cheryl Bradley et al., 1995

"Ecosystems and the ecological associations among its members are complex and poorly understood."

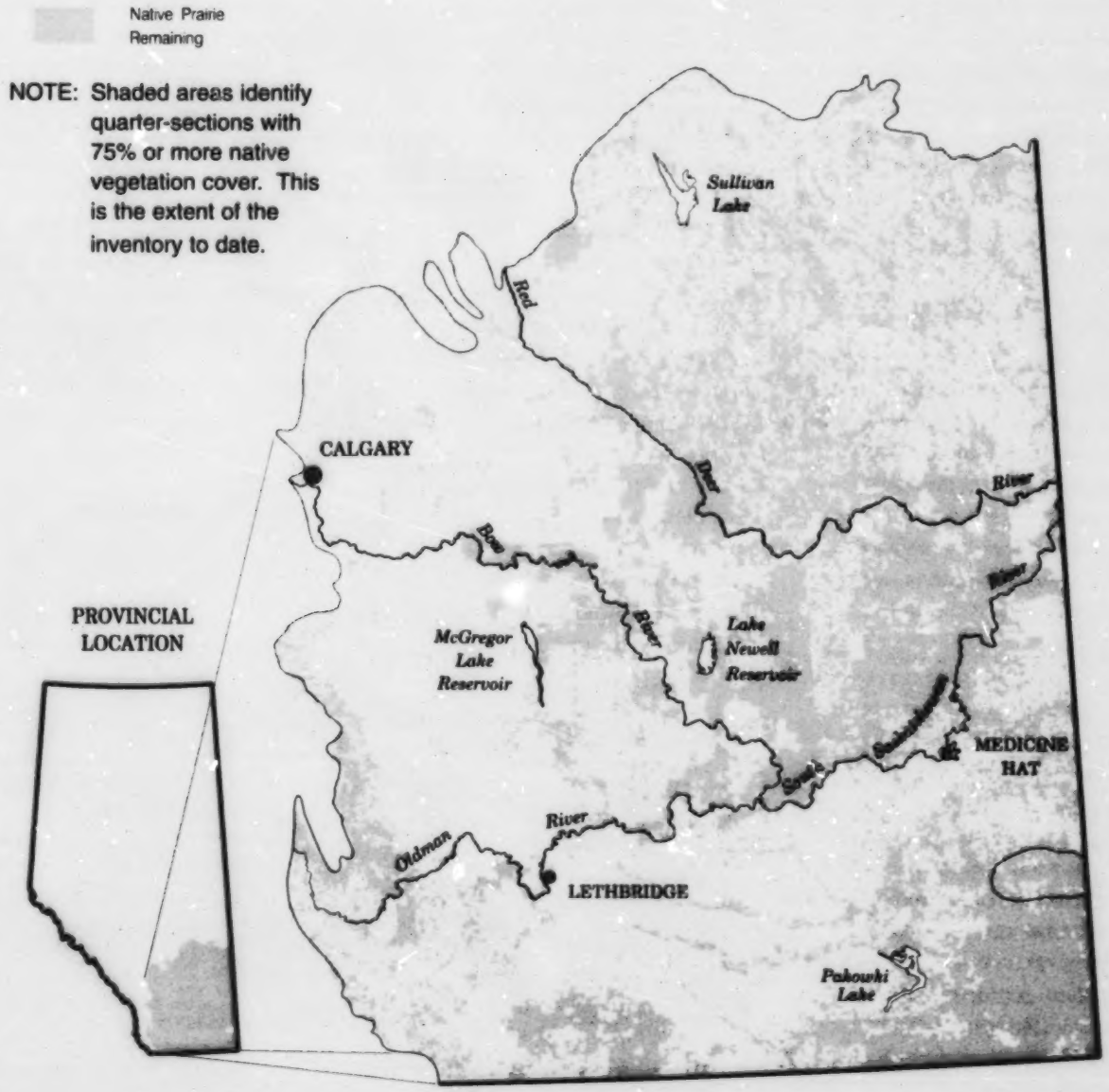
Heather Gerling, et al., 1995

"Creating ecosystem management systems that respect the biological constraints of the landscape, that maintain a substantial component of native wildlife and vegetation, and that produce sustainable economic gain is a tremendous challenge, but also one that will give us intellectual, moral and spiritual satisfaction."

Don Gayton, 1995

FIGURE 2

NATIVE VEGETATION COVER REMAINING IN THE GRASSLAND NATURAL REGION



NOTE: An inventory of native vegetation in the Parkland Natural Region is underway and will be completed in the 2001/02 fiscal year.

Goal 2

Encourage government policies, programs and regulations that favour the conservation of Alberta's native prairie and parkland landscapes while preserving their cultural and economic values.

Decisions on prairie land use are influenced strongly by the signals that governments at all levels send out through statutes, regulations, policies and programs. People react quickly to incentives or disincentives initiated by governments. Prevailing government policy regimes are therefore a major factor in all land use decisions affecting native prairie landscapes.

Because of its dominant influence on the landscape, agricultural is usually singled out for of its effects on the native prairie environment. Rural communities tend to have a deep sense of responsibility and stewardship towards the land, but they are also highly responsive to policy and program incentives, especially when economic risk is involved.

Historically, government agricultural and farm support programs have provided financial incentives for intensive agriculture and the cultivation of grain crops. Producers have reacted by providing good returns, but the net result has often been increased pressure on marginal agricultural lands and reduced biodiversity in an already simplified ecosystem. Such impacts were often the unintended result of well-intentioned efforts to support the agricultural sector.

In response to heightened environmental awareness and increasing societal acceptance of sustainable development, there have, in recent years, been conscious attempts at redress. Both federal and provincial agriculture agencies are now placing a higher priority on the concept of environmental sustainability. For example, since the first PCAP was published, a National Environmental Strategy for Agriculture and Agri-Food has been developed. Proposed endangered species legislation has been introduced by the federal Minister of Environment for the third time (the first two bills 'died on the Order Paper'). There have also been 'green' programs such as Permanent Cover Programs with their soil conservation and upland habitat benefits, and coordinated federal/provincial efforts to explicitly address sustainability in the agricultural sector.
Provincially, efforts have been initiated to identify and designate protected areas and to address issues such as access, tenure and surface rights on White Area Crown leases. An Endangered Species Conservation Committee has been established in Alberta, and several prairie and parkland species have received new or are benefiting from additional protection measures. Significantly, additional staff and financial resources have been allocated to implement recovery plans.

Despite such advances, the appropriate mix of voluntary and regulatory requirements to safeguard environmental quality in prairie environments remains to be reconciled.

"Agricultural policy has tended to ignore its impact on the environment and created an economic framework for farmers that works at cross-purposes with objectives for the environment and wildlife habitat."

John Girt,
1990

Current land use changes are perhaps not as sweeping as the original transformation of the prairies into an agricultural landscape, but they are highly significant because remnant native prairie has been vastly reduced in extent (Figure 2). Both the prairies in general and agriculture in particular are continually responding to ever-increasing urban expansion and industrial development. In addition, a high level of natural resource development in the province is resulting in numerous new site and linear disturbances that cumulatively fragment the landscape at an increasing rate, despite improvements to industrial practices and updated environmental legislation.

The process of including environmental policy considerations in key sectors such as agriculture and petroleum and natural gas is an important first step. But it is only that.

The next steps are threefold:

1. Ensure explicit recognition of prairie conservation as an important societal goal in its own right.

2. Ensure that the screening of policies, programs and acts occurs widely, covering all sectors, all levels of government, and the entire land base.

3. Ensure that government policies, programs and acts are tested against specific environmental performance expectations and the goals and intentions of the Alberta PCAP.

2.1 Objective:

Support those policies for Crown lands that promote the retention of Alberta's native prairie rangelands.

Actions:

2.1.1 Review the impacts of management policies that apply to Crown lands and communicate these findings to PCF member organizations.

2.1.2 Review issues that affect Crown lands and make action and policy recommendations to appropriate agencies.

2.2 Objective:

Promote those laws, regulations, policies, and programs that encourage the conservation of Alberta's native prairie ecosystems under all other types of ownership.

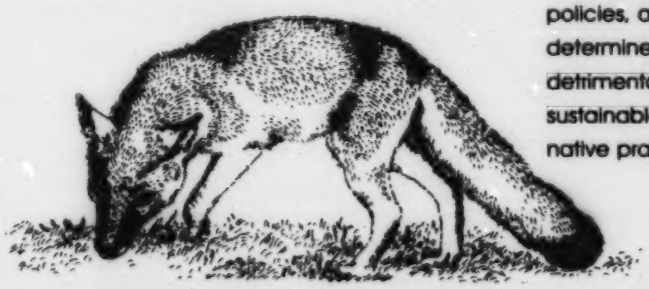
Actions:

2.2.1 Encourage those who are responsible for developing laws, regulations, policies, and programs to participate on the PCF.

2.2.2 Assess the impact of existing laws, regulations, policies, and programs to determine if they are beneficial or detrimental to the sustainable use of Alberta's native prairie ecosystems.

2.2.3 Advise responsible agencies of elements in existing laws, regulations, policies, and programs that are detrimental to the sustainable use of Alberta's native prairie ecosystems.

2.2.4 Participate in reviews of proposed laws, regulations, policies, and programs to determine if they could be detrimental to the sustainable use of Alberta's native prairie ecosystems.



Goal 3

Adopt land use management practices and protective strategies that sustain diverse ecosystems across the whole prairie and parkland landscape.

As a society we tend to set aside areas of land for specific uses, for example, cities and towns, linear corridors, industrial sites, intensive agricultural development, and parks and protected areas. Wild species indigenous to Alberta's native prairie will adapt or fail to adapt to these modified landscapes, but the fragmented prairie landscape is relatively new. Until recently, there were few geographic barriers on the prairies and most species enjoyed widespread distributions.

Designating particular parcels of land for conservation purposes is important, but it is only one tool in the toolbox because our economy, society and environment are interrelated spatially. Conserving our native prairie, our farming communities and maintaining a sustainable rural economy are objectives that must be pursued simultaneously. Effective prairie conservation has to be carried out across the prairie landscape as a whole, not only in small, fragmented, isolated parcels.

Since the first PCAP was published, a conceptual framework for prairie ecosystem management has been developed and numerous strides forward have been made.

For example:

- innumerable biophysical and range inventories have been conducted
- new areas have been designated for legislated protection
- grassroots driven initiatives aimed at practice change, such as the Alberta Riparian Habitat Management Program (Cows and Fish), have seen great success
- the Swift Fox has been reintroduced to the prairie
- innumerable land conservation and habitat protection/development programs have been implemented by organizations as diverse as the Eastern Irrigation District, the Alberta Fish and Game Association, the Special Areas Board, Ducks Unlimited, the Federation of Alberta Naturalists, the Alberta Conservation Association, and land trust organizations like the Nature Conservancy of Canada and the Southern Alberta Land Trust Society

Of particular importance are ecosystem management practices applied across the prairie landscape as a whole — such as sound range management practices that will sustain native species, the rural economy and rural lifestyles. Land use planning, cooperative conservation projects, extension activities, species recovery efforts, and the restoration of degraded ecosystems all play a role in sustaining vital prairie ecosystems, and must be integrated with our economic and social objectives for other uses of the prairie landscape.

We must also learn to better understand how the choices we make today will determine what kind of environment we pass on to our children and grandchildren to live in tomorrow. If we manage our activities intelligently, society can use and disturb the landscape while retaining a rich tapestry of prairie plants and animals. But if our land use practices continue to permanently transform the landscape, we will be left with a simplified and impoverished natural legacy.

The challenge is to look beyond the sector, the site, or the species, and to apply a conservation land ethic to the entire interdependent prairie and parkland landscape.

"Long term protection of rare and declining species is most likely to be successful if the species are maintained within functioning landscapes."

Stephen Chaplin et al., 1995

3.1 Objective:

Adopt and encourage ecosystem management practices to sustain and conserve all prairie landscapes.

Actions:

3.1.1 Develop a model for simulating cumulative effects on the prairie landscape. Relate this model with the ecosystem management framework outlined in PCF Occasional Paper No. 2. Promote and distribute widely as a tool for education, management, planning, and strategic decision-making.

3.1.2 Develop a range health assessment methodology. Promote wide use of range and riparian health assessments to enhance the level of stewardship on native prairie landscapes.

3.1.3 Encourage agencies and NGOs to work together in the design of collaborative land and natural resource inventories for applied management purposes.

3.1.4 Develop regional-scale integrated resource management strategies to provide sustainable policy and operational direction for environmental and natural resource management in prairie and parkland Alberta.

3.1.5 Conduct biophysical and range inventories on priority Crown lands that provide benchmarks to guide management plans.

3.1.6 Develop cooperative range inventories for producers on private rangelands to help sustain native prairie on a landscape basis.

3.1.7 Implement cooperative and applied conservation initiatives delivered by land and resource managers, landowners and industry (e.g., cover and woodlot programs, wetland management, conservation crops and cropping systems, and minimal impact resource exploration and extraction practices).

"Ensuring that the complete diversity of Alberta's unique landscapes exists for future generations is a reflection of the leadership required to effectively manage our resources."

Ralph Klein, 1995

3.2 Objective:

Determine the biotic and abiotic requirements of native prairie species and communities and the management practices needed to sustain them.

Actions:

3.2.1 Establish a network of sites in the Mixed-Grass, Northern Fescue, Foothills Fescue, and Parkland areas where long-term monitoring, research, and applied management demonstration activities are being undertaken. Use these sites to improve our understanding about species and ecosystems.

3.2.2 Integrate research and management activities to accommodate species requirements through modified land use practices.

3.2.3 Continue progress towards identifying and determining the status and priority habitat needs of all prairie and parkland species.

3.2.4 Produce detailed provincial status reports for all 'at risk' and 'may be at risk' species that rely on prairie or parkland habitats.

3.2.5 Develop recovery plans, or take other measures as appropriate, for any species designated as endangered or threatened in legislation.

3.2.6 Develop and implement strategies to prevent species from becoming 'at risk'.

3.2.7 Explore opportunities for using health assessment procedures, site inspections, or other measures to promote 'coarse filter' landscape and ecological management, i.e., securing habitat requirements for all native species versus a 'target species' approach.

3.2.8 Re-introduce native species extirpated from Alberta's prairie where practical and appropriate.

3.3 Objective:

Provide specific protection for significant, representative, and sensitive ecosystems.

Actions:

3.3.1 Develop mechanisms to support the protection of native landscapes to address the gaps in prairie natural history theme representation in the current system.

3.3.2 Produce biophysical inventories and management plans, and establish monitoring programs for all protected areas within five years of site designation.

3.3.3 Develop incentives and mechanisms to protect environmentally significant areas and habitats on private lands.

3.3.4 Ensure that provisions are made to protect the integrity of prairie ecosystems when revising all existing protected area management plans.

3.3.5 Investigate opportunities for linking protected areas with connecting corridors.

3.4 Objective:

Actively pursue the reclamation of degraded or disturbed prairie ecosystems.

Actions:

3.4.1 Identify degraded native prairie ecosystems, and adopt management strategies that eventually restore soil, hydrology, plant, and animal communities.

3.4.2 Adopt management practices on tame grasslands that prevent degradation of soils and vegetation, that enhance ecological function, and that promote biodiversity.

3.4.3 Adopt farming practices on tilled agricultural lands (i.e., soil conservation practices) that support prairie conservation objectives.

3.4.4 Reclaim disturbed native prairie by reconstructing landscape features, conserving and replacing soils, and using re-vegetation practices that encourage the eventual re-establishment of diverse native plant communities.

3.4.5 Promote the use of native plant species for reclamation, grazing, haying or 'cover' purposes (e.g., road allowances, conversion of marginal cropland, undeveloped urban parkland).

3.4.6 Ensure that all materials used for prairie reclamation are free of problem weeds and invasive agronomic species (e.g., Crested Wheatgrass) by promoting the use of seed analysis certificates.

3.4.7 Encourage the use of native plants in restoration, educational and demonstration sites (e.g., heritage sites, gardens).

"The problem with ... sectoral approaches is that they fail to recognize that declines of landscapes, economies and social structures are interrelated, as are policy solutions."

Richard Baydack, et al., 1995

3.4.8 Revise and strengthen the Information Letter "Petroleum Industry Activity on Native Prairie: Guidelines for Surface Disturbance".

3.4.9 Develop an extension document to educate and inform industry, government staff, landowners, and the public about best practices for oil and gas development on native prairie.

"Farm people are not antagonistic to biodiversity conservation; indeed many have become concerned about what they see happening on the landscape; it is just that they do not feel the burden of biodiversity conservation should be borne by them alone. Nor should it."

Bob Sopuck, 1993

"The problem then is how to bring about a striving for harmony with the land among a people many of whom have forgotten there is any such thing as land, among whom education and culture have become synonymous with landlessness. This is the problem of 'conservation education'."

Aldo Leopold, 1949

Goal 4

Increase awareness of the values and importance of Alberta's native prairie and parkland ecosystems.

While the importance of natural environments to Canadians has been made clear through numerous surveys, much work remains to be done in creating awareness about our native prairie home and the cumulative impacts that our actions have on its health and long-term survival. Goal 4 of the Prairie Conservation Action Plan aims to increase public awareness of prairie conservation in three main areas.

- promote awareness through public awareness campaigns, existing interpretative programs at zoos, parks and nature centres, and within urban centres
- ensure the ongoing communication of proven conservation measures both to and from prairie landowners, and educate local decision-makers and staff employed by local authorities
- increase awareness of prairie conservation in formal education programs

Since the first Alberta PCAP was published, a number of initiatives have been implemented to increase public awareness of the values and importance of Alberta's native prairie ecosystem. In cooperation with the University of Lethbridge, the Prairie Conservation Forum developed a senior level university course entitled "Topics in Prairie Conservation". The course brought together a diverse group of instructors from various organizations to present and discuss a variety of issues and challenges associated with prairie conservation.

In 1996, the Forum established a Communications Work Group to develop various communication products to serve the needs of the PCF. Three background papers on prairie conservation were developed in conjunction with the "Topics in Prairie Conservation" course. These background papers have been a valuable resource in the development of a variety of communication products, including a travelling exhibit, pamphlet, and posters.

A number of education outreach products have been developed including an updated inventory of educational programs, materials for teacher workshops, an Occasional Paper series, a Prairie Note series, and a Writer's Kit to introduce authors and journalists to the PCF and various conservation initiatives. The PCF has also invested considerable energy in developing and upgrading a website to showcase the mandate and initiatives of the Forum; the website also provides a link to member organizations represented on the Forum.

Demonstration sites, such as the Antelope Creek Ranch, are valuable in educating people about range management practices that are sympathetic to prairie wildlife and native plant species. A number of conservation initiatives are in place to promote land stewardship approaches that restore or enhance stressed landscapes. Urban audiences are being targeted through existing programs at zoos and at nature centres.

4.1 Objective:

Promote an understanding and appreciation of our native prairie ecosystems amongst the public.

Actions:

4.1.1 Continue to develop the Prairie Conservation Forum Website (http://www.AlbertaPCF.ab.ca) as an authoritative source of environmental, educational, and resource conservation information.

4.1.2 Implement a process to select a Provincial Grass that will be a symbol of our prairie heritage and convey a sense of prairie as home place for many Albertans. Design the selection process to raise awareness among Albertans about the ecology and value of native grasses and native prairie.

4.1.3 Target both rural and urban audiences in the development and delivery of education and awareness materials and programs.

4.1.4 Encourage the media to support prairie conservation initiatives through coverage of prairie conservation issues.

4.1.5 Continue the PCF Occasional Paper series and the Prairie Note series.

4.1.6 Continue to encourage interpretive programs at zoos, parks and nature centres.

4.1.7 Promote prairie conservation through urban garden centres. Encourage garden centres to provide native plants for urban yards and information about the importance of preserving native prairie.

"Conservation programs must be designed within and not outside the 'culture of agriculture'. This is in the spirit of sustainable development that directs us to improve the environment, economy and human well-being at the same time."

Bob Sopuck, 1993

4.2 Objective:

Continue to promote an understanding and appreciation of native prairie ecosystems amongst users of prairie landscapes. Provide information and resources to assist landowners, lessees, and a growing number of rural-fringe homeowners in conserving native prairie habitats.

Actions:

4.2.1 Tap into the knowledge and experience of land stewards when developing educational and extension materials.

4.2.2 Promote the links between beneficial land management practices and water quality through on-going extension programs such as the Stockman's Range Management course.

4.2.3 Continue to support and expand riparian management programs beyond the foothills to include the prairies and parkland natural regions.

4.2.4 Promote and recognize outstanding environmental stewardship through award programs such as the Alberta Cattle Commission's Environmental Stewardship Award and others.

4.2.5 Work cooperatively with landholders to protect endangered species and prairie habitats, and work together to find appropriate management techniques for both human activities and wild populations at risk.

4.3 Objective:

Promote an understanding and appreciation of our native prairie ecosystems amongst decision-makers at the municipal level.

Actions:

4.3.1 Encourage the development of field days for municipal and provincial staff, to raise awareness initially, then to develop training programs that link decision-making to ecological principles.

4.3.2 Promote the use of cumulative effects models and GIS based land use inventories and tools to raise awareness about trends and consequences, and to assist land use decision making processes in conserving environmental quality and native ecosystems.

4.4 Objective:

Encourage the incorporation of prairie ecosystem studies in formal educational curricula at all levels.

Actions:

4.4.1 Continue to develop and promote prairie educational resources for schools.

4.4.2 Expand the delivery of the prairie conservation course developed for the University of Lethbridge to other universities and colleges.

"We cannot bring back the expanse of original prairie grassland which now supports our productive agricultural economy, but we must ensure that what remains of this precious landscape is maintained in perpetuity."

Garry Trottier, 1002

"In the larger context of conserving biological diversity in agricultural and natural ecosystems in North America, prairies are a priority, perhaps the highest priority. It is time to bring a measure of prairie conservation to the forefront."

Fred Samson and Fritz Knopf, 1004

GLOSSARY

The following definitions are provided for some of the key terms used in the Alberta PCAP.

Biological Diversity

A measure of the type and nature of organisms occurring on a landscape.

Biophysical Inventory

Taking stock of the type and condition of biological and physical (e.g., land form, climate, surface material) features of an area.

Community

The populations of different species interacting with each other in a particular habitat.

Conservation

The wise use, management and protection of resources to maintain their quality and quantity on a sustainable basis.

Conservation Ethic

A way of acting and thinking within a conservation oriented framework.

COSEWIC

Committee on the Status of Endangered Wildlife in Canada, which is composed of representatives of federal, provincial and territorial governments, World Wildlife Fund Canada, Canadian Nature Federation and Canadian Wildlife Federation.

Crown Land

Lands held by the Crown in right of the provincial or federal government. In Alberta, provincial Crown land is administered under the authority of the Public Lands Act.

Ecosystem

The structure and function of living and non-living components and the ecological processes that link them.

Ecosystem Function

The set of processes that integrate ecosystem components.

Ecosystem Management

The art and science of conserving natural landscape diversity, productivity and processes while providing a sustainable flow of products to meet society's needs.

Endangered

Any native species that is threatened with immediate extirpation or extinction throughout all or a significant portion of its range, owing to the actions of people.

Extirpated

Any native species of fauna or flora that no longer exists in the wild in Canada, but survives elsewhere.

Fauna

All species of vertebrate and invertebrate animals.

Fescue grassland

"Fescue grassland" includes two natural subregions developed mainly on chernozemic soil, under dry, warm climatic conditions. Rough fescue dominates the native vegetation in both subregions. The Northern Fescue subregion extends in an arc passing through Drumheller and Coronation; the Foothills Fescue subregion occurs in a narrow band from the Alberta/Montana border, through Calgary at a somewhat higher elevation and is slightly cooler and moister than the Northern Fescue subregion.

Flora

All species of vascular and non-vascular plants.

GIS (Geographic Information System)

A powerful mapping tool for collecting, storing, retrieving, displaying and transforming or manipulating mapped data. GIS makes 'smart maps' in that any type of data can be mapped where it occurs in real space and used to answer management questions for particular applications. It can be used to model 'what-if' scenarios - which are an important component of environmental and risk assessments - and is used in cumulative impacts modelling as well as examining trends over time and space.

Habitat

The place where an animal or plant lives.

Healthy Ecosystem

An ecosystem in which the structure and functions permit the maintenance of the desired condition of biological diversity, biotic integrity, and ecological processes over time.

Holistic

An approach in which all elements of a system are taken into consideration.

Landscape

All of the biotic and abiotic features of an area including vegetation, microbes, wildlife, topography, soils, geology and climate. A landscape can be a small feature such as a hill, or a regional feature such as a natural region or subregion (see definition of these terms).

Management Plan

A set of actions to ensure that a particular species or habitat does not become rare, threatened or endangered.

Microfauna

Insects and other small invertebrates like mites, nematodes and worms that serve an essential role in ecosystems.

Microflora

Fungi, bacteria, bacteria-like organisms, algae and viruses that serve an essential role in ecosystems.

Mixedgrass

The 'mixedgrass' includes two natural subregions (Dry Mixedgrass and Mixedgrass) developed on brown and dark-brown Chernozemic soils. These natural subregions are so named because of the occurrence of both mid-length and short grasses. The taller grass species (spear grass, porcupine grass and wheat grass) comprise the majority of the vegetative cover over most of the mixedgrass subregion. In the driest situations and under heavy grazing regimes, species of shorter stature (low sedge, June grass and blue grama) predominate, creating a mixedgrass variant called the dry mixedgrass natural subregion.

Monitoring

The act of assessing some entity with the intent of detecting changes over time. Ecosystem monitoring, for example, might include establishing some benchmarks or records of initial condition and then surveying those benchmarks every few years for changes in wildlife, plant and microbial composition.

Native Prairie

An area of unbroken grassland or aspen parkland dominated by non-introduced species.

Native Prairie Ecosystem

See 'native prairie' and 'ecosystem'. Includes soil, hydrology, vegetation, climate, microbes, wildlife, landscape features, and the processes which link them.

Natural Region/Subregion

A natural region is a broad landscape division characterized by a distinct set of climatic, vegetation, soil, and topographic features. A natural subregion is a finer subdivision of the natural region based on landform variations over a smaller area. There are six natural regions subdivided into 20 natural subregions in Alberta.

Parkland

The 'parkland' includes two natural subregions (Central Parkland and Foothills Parkland) developed on dark-brown or black chernozemic soils. Characteristic vegetation includes rough fescue in grassland portions and trembling aspen in the treed areas. This natural region has a well developed shrub and herbaceous layer. In the Central Parkland rainfall is distributed evenly through the summer months, providing water for abundant pothole wetlands. The Foothills Parkland occupies a narrow transitional zone between foothills fescue grasslands and montane forests. The frost free period averages only 90 days.

Protection

Retention of the integrity, authenticity, and intrinsic value of the native prairie resource in perpetuity.

Range, Rangelands

Lands supporting native or introduced plants which are a source of forage for domestic and native animals, and a source of other values derived from ecosystem functions.

Range Management

The art and science of optimizing the returns from rangelands in those combinations most desired by and suitable to society through the manipulation and conservation of range ecosystems.

Recovery Plan

A set of actions for a particular threatened, endangered or extirpated species, aimed at increasing its numbers so that it can be de-listed.

RENEW

Recovery of Nationally Endangered Wildlife is an organization consisting of federal, provincial and territorial agencies and nongovernmental organizations that was established to coordinate and promote wildlife conservation efforts and recovery programs for species at risk.

Resource

Any part of the environment which society perceives as having value.

Riparian Management

The actions associated with controlling resource uses in ecosystems along streams and on their floodplains to ensure their continuing integrity and function.

Species

A unit used to classify living things, describing any groups that share general physical characteristics, and which can mate and produce fertile offspring.

Sustainable Development

The act of balancing human needs for resources with the maintenance of healthy natural ecosystems that support human existence.

Tame Pasture (tame grassland)

Landscapes which have been converted from natural vegetative cover to forage species through cultivation and seeding.

Threatened

Any native species that is likely to become endangered if the factors affecting its vulnerability are not improved.

Vulnerable

Any species that exists in low numbers or in restricted areas where its status could worsen unless remedial actions are taken.

Wildlife

All native species of plants, animals (including all invertebrates and vertebrates) fungi, and some unicellular life forms.

APPENDIX

Prairie Conservation Forum

The Prairie Conservation Forum is a voluntary association of Alberta organizations whose interests or jurisdictions relate to prairie and parkland landscapes. It exists to encourage effective implementation of the Prairie Conservation Action Plan and to provide an ongoing profile for prairie and parkland conservation initiatives. Its key functions include:

* providing a forum for networking and information exchange
* steering implementation of the PCAP
* promoting public awareness and education

Any organization wishing to participate in the work of the Forum may join the Prairie Conservation Forum. All Forum meetings are open to the public. The Prairie Conservation Forum meets about three times annually in various centres in prairie and parkland Alberta.

The current membership of the Prairie Conservation Forum is as follows:

Agriculture and Agri-Food Canada
- Bob Wettlaufer

Agriculture Services Board, MD of Ranchland No. 66
-Carolyn Wilson

Alberta Cattle Commission
- Ron Glaser

Alberta Community Development
-Dr. Philip Stepney

Alberta Conservation Association
- Randy Lee

Alberta Conservation Tillage Society
Dryland Salinity Control Association
- Very McNeely

Alberta Economic Development

Alberta Energy
- Rhonda Wehrhahn

Alberta Energy and Utilities Board
- Roger Creasey

Alberta Environment
- Sherry Hazelaar
- Terry Krause
- Livio Fent

Alberta Fish and Game Association
- Kerry Grisley

Alberta Infrastructure
- Al Nilson

Alberta Municipal Affairs
- Brian Peddigrew

Alberta Native Plant Council
- Cheryl Bradley

Alberta Natural Resources Conservation Board
- Dr. Robert Powell

Alberta Sport, Recreation, Parks and Wildlife Foundation
- Tom Cameron

Alberta Sustainable Resource Development
- Doug Clark
- Brian Laing
- John Mahoney

Alberta Wilderness Association
- Cliff Wallis

Bow River Project
- Jackie McCall

Canadian Forces Base - Suffield (Department of National Defence)
- Major Stewart Gibson

Canadian Parks and Wilderness Society
- Greg Fredeen

Canadian Wildlife Service
- Dean Nernberg

Ducks Unlimited Canada
- Morgan Stromsmoe

Eastern Irrigation District
- Rick Martin

Federation of Alberta Naturalists
- Donald Stiles

Grasslands Naturalists
- Dawn Dickinson

Lethbridge Naturalist Society
- Liz Saunders

National Energy Board
- Sandy Harrison

Nature Conservancy of Canada
- Margaret Green

Palliser Regional Municipal Services
- Doug Fleming

PanCanadian Petroleum Limited
- Stuart Lunn

Parkland Community Planning Services
- Bill Shaw

Parks Canada (Waterton Lakes National Park)
- Bill Dolan

Southern Alberta Land Trust Society
- Patricia Hubbard

Society for Range Management
- Ed Nelson

Special Areas Advisory Council
- Clayton Curry

Special Areas Board
- Dug Major

University of Alberta
- Dr. Mark S. Boyce

University of Calgary
- Dr. Richard Revel

University of Lethbridge
- Dr. Keith Roscoe

Wildlife Society
- David Scobie

PCF Operations
- Ian Dyson, PCF Secretary
- Sam Wirzba, PCF support

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